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Report on the Progress of Management Plan Implementation for the Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) in Canada for the Period 2010- 2015

Pacific Harbour Porpoise

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Preface

The federal, provincial, and territorial government signatories under the Accord for the Protection of Species at Risk (1996) agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Section 72 of the Species at Risk Act (S.C. 2002, c.29) (SARA) requires the competent minister to report on the implementation of the management plan for a species at risk, and on the progress towards meeting its goals and objectives within five years of the date when the management plan was placed on the Species at Risk Public Registry and in every subsequent five-year period, until its goals and objectives have been achieved or the status of the species changes to threatened or endangered under SARA.

Reporting on the progress of management plan implementation requires reporting on the collective efforts of the competent minister(s), provincial organizations and all other parties involved in conducting activities that contribute towards the species' conservation. Management plans set goals and objectives for maintaining sustainable population levels of one or more species that are particularly sensitive to environmental factors, but which are not in danger of becoming extinct. Some of the identified strategies and approaches are sequential to the progress or completion of others; and not all may be undertaken or show significant progress during the time frame of a report on the progress of management plan implementation (progress report).

The Minister of Fisheries and Oceans and the Minister responsible for the Parks Canada Agency (PCA), the competent ministers under SARA for the Pacific Harbour Porpoise, have prepared this progress report.

As stated in the preamble to SARA, success in the conservation of species at risk depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in the management plan and will not be achieved by Fisheries and Oceans Canada or any other jurisdiction alone. The cost of conserving species at risk is shared amongst different constituencies. All Canadians are invited to join in supporting and implementing the Management Plan for the Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) in Canada for the benefit of the species and Canadian society as a whole.

Acknowledgments

This progress report was prepared by Christie McMillan, with input from Fisheries and Oceans Canada (DFO) Marine Mammal Program, Science, Fisheries Management, as well as; PCA; the U.S. National Oceanic and Atmospheric Administration (NOAA); the Province of British Columbia; the Vancouver Aquarium; the Pacific Biodiversity Institute; Sea View Marine Sciences; and the Porpoise Conservation Society. The Department of Fisheries and Oceans would like to express its appreciation to all individuals and organizations who have contributed to the conservation of the Pacific Harbour Porpoise.

Executive summary

The Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) was listed as a species of special concern under the Species at Risk Act (SARA) in 2005. The Management Plan for the Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) in Canada (DFO 2009) was finalized and published on the Species at Risk Public Registry in 2009.

The main threats identified for the Pacific Harbour Porpoise include: entanglement and entrapment, habitat degradation, toxic spills, acoustic disturbance, contaminants, prey reduction, and vessel strikes.

The management goal for the Pacific Harbour Porpoise is: "to maintain a self-sustaining population within its known range in Pacific waters of Canada."

In order to achieve this goal, the management plan identified the following population and distribution objectives:

- maintain the summertime, inland-waters abundance of Pacific Harbour Porpoise (averaged over 5 years) at or above the most recent estimate of average population abundance (in Williams and Thomas 2007)
- maintain the summertime abundance of Pacific Harbour Porpoise in the Juan de Fuca Strait (averaged over 5 years) at, or above the most recent estimate of average summertime abundance (in Hall 2004)
- maintain the population's current range of occupancy and distribution on the coast of British Columbia (B.C.)

This report documents the progress of management plan implementation for the Pacific Harbour Porpoise in Canada for the period 2010-2015. It summarizes progress made towards achieving the goal and objectives set out in the management plan, including:

- ongoing research focused on abundance and distribution of Pacific Harbour Porpoise through ship-based multi-species surveys, land-based observation sites, sightings networks, and passive acoustic monitoring
- improved understanding of the population structure of Pacific Harbour Porpoise in southern B.C. waters through genetic analysis
- identification of the first potential breeding sites for Pacific Harbour Porpoise in B.C. waters
- a study focused on the prey species and seasonal diet of Pacific Harbour Porpoise
- coast-wide expansion of the B.C. Marine Mammal Response Network (MMRN) responsible for responding to all injured, distressed and dead marine mammals including Pacific Harbour Porpoise

- outreach programs promoting responsible marine mammal viewing guidelines and raising awareness about anthropogenic threats to marine mammals have reached hundreds of thousands of citizens coast-wide

While progress has been made towards meeting the management goal and objectives presented in the management plan, ongoing work is required to better understand the abundance and distribution of the Pacific Harbour Porpoise, and the threats to this population.

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1 Introduction

This document reports the progress towards meeting the goal and objectives listed in the Management Plan for the Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) in Canada (DFO 2009) and should be considered as one in a series of documents for the species that are linked and should be taken in consideration together, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status report (COSEWIC 2003), the management plan, and multi-species action plan (Parks Canada Agency 2016). Although outside the period of consideration for this progress report, it should also be noted that the species' status was re-examined and confirmed as special concern by COSEWIC in April 2016 (COSEWIC 2016).

Section 2 of the progress report reproduces or summarizes key information on the threats the species is facing, the goal and objectives, and actions and approaches for meeting the objectives. For more details, readers should refer back to the management plan (DFO 2009).

Section 3 reports the progress of activities identified in the management plan to support achieving the management goal and objectives. Section 4 summarizes the progress toward achieving the management goal and objectives.

2 Background

2.1 COSEWIC assessment summary

The listing of the Pacific Harbour Porpoise under the Species at Risk Act (SARA) in 2005, which led to the development and publication of the management plan in 2009, was based on the information provided in the COSEWIC status report (COSEWIC 2003). This information is also included in section 1.1 of the management plan. An updated COSEWIC status report on Pacific Harbour Porpoise was published in 2016.

2.2 Threats

This section summarizes the information, found in the management plan (DFO 2009) on threats to the Pacific Harbour Porpoise.

2.2.1 Threats to the Pacific Harbour Porpoise

Table 1 summarizes the population-level anthropogenic threats[1] to the Pacific Harbour Porpoise as found in section 1.5 of the management plan.

Table 1. Summary of the population-level threats identified for the Pacific Harbour Porpoise, based on the management plan (DFO 2009).

Threat	Population-level threat risk	Description
Entanglement and entrapment	High, based on weight of evidence	Pacific Harbour Porpoise in B.C. waters have been impacted by entanglement and mortality associated with gillnet, troll, and trawl fisheries. Aquaculture may also pose a risk. Although there are data gaps in B.C. and worldwide regarding the estimates of total Harbour Porpoise incidental mortality in fisheries, the weight of evidence indicates that this threat is of high concern.
Habitat degradation	Potentially high	Urbanization of coastal areas through the development of marinas, docks, ferry terminals, tanker ports, wind farms, aquaculture sites, and other similar projects may result in physical exclusion of Pacific Harbour Porpoise from their preferred shallow water habitats, while related vessel traffic may lead to acoustic disturbance. In addition to displacement, this physical and acoustic disturbance could affect the feeding, reproductive success, and social behaviour of Pacific Harbour Porpoise.
Toxic spills	Moderate to high, depending on spill location and timing	Petrochemical spills have the potential to impact Pacific Harbour Porpoise directly through the inhalation of toxic vapours, or indirectly through contaminating or killing prey species. The coastal distribution of Pacific Harbour Porpoise, as well as their estimated small population size and potentially restricted habitat use makes them particularly vulnerable to regional threats such as toxic spills.
Acoustic disturbance	Low to high	Pacific Harbour Porpoises have been noted to be particularly sensitive to noise in their habitat, potentially due to their reliance on sound for communication and foraging. Chronic noise, including vessel traffic,

[1] Natural threats, including predation, diseases and parasites, harmful algal blooms, stranding, and hybridization are not included in this table but can be found in section 1.5 of the management plan.

Threat	Population-level threat risk	Description
		aquaculture installations, and alternative energy operations may lead to temporary or longer-term habitat avoidance by Pacific Harbour Porpoise, while acute noise, including seismic surveys, military naval activities, marine construction, and acoustic deterrent devices may lead to temporary displacement from key habitats, physical injury, or death. Both chronic and acute noise can also interfere with Pacific Harbour Porpoise foraging, navigating, and social communication.
Contaminants: regulated persistent biological toxins (PBT)	Moderate to high	Research suggests there is a demonstrated relationship between PBT contaminant burden and immunological effects in in Harbour Porpoise. For example, PCB contaminant burdens have been positively correlated with nematode infestation and infectious disease mortality in Atlantic Harbour Porpoise. Although the production of many regulated PBTs (e.g., PCBs, DDT) have been discontinued in North America, their concentrations in the environment and in organisms often remains high for several decades.
Contaminants: non-regulated PBTs	Moderate to high	Unregulated PBTs (e.g., PBDEs[2]) are produced on local, national, and global scales. Although effects on Pacific Harbour Porpoises and other organisms are still unclear, there is evidence to suggest that these emerging PBTs have similar toxic properties to PCBs.
Contaminants: biological	Low to moderate	Biological pollution, including nutrient loading, hormones, and antibiotic contamination, can enter the marine environment via sewage outflow, agricultural runoff, and other sources. Nutrient loading and introduction of foreign pathogens could lead to disease outbreaks in Harbour Porpoise populations, and exposure to biological pollution may lead to synergistic effects with other stresses.
Prey reduction: competition with fisheries	Potentially high	Although the diet of the Pacific Harbour Porpoise remains poorly understood, several known Harbour Porpoise prey species are also commercially important (e.g., squid, herring, hake). Harvesting of these species may alter local prey abundance, potentially requiring Pacific Harbour Porpoise to switch to lower-energy prey. Decreases in available prey could lead to increased susceptibility to disease and/or could directly affect survival

[2] In 2016, new regulations for PBDEs under the Canadian Environmental Protection Act (CEPA) have come into effect and can be found here.

Threat	Population-level threat risk	Description
		through starvation.
Prey reduction: climate change or ecosystem regime shift	Unknown, likely variable	Natural ecosystem shifts (e.g., El Niño, Pacific Decadal Oscillation) may affect Pacific Harbour Porpoise prey species composition and availability. Climate change has the potential to affect the distribution of Pacific Harbour Porpoise and their prey.
Vessel strikes	Unknown, variable depending on vessel size and speed	Pacific Harbour Porpoise are vulnerable to vessel strikes, in part because their habitat overlaps with urbanized marine environments. However, vessel strikes are likely under-reported; causing an underestimate of the total annual occurrence of vessel strikes in B.C., and poor understanding of the scope of this threat.

2.3 Conservation

This section summarizes the information, found in the management plan (DFO 2009), on the management goal and objectives that are necessary for the conservation of the Pacific Harbour Porpoise.

2.3.1 Management goal and objectives

Section 2 of the management plan identified the following management goal and objectives:

Management goal:

The goal of the management plan for Pacific Harbour Porpoise is to maintain a self-sustaining population within its known range in Pacific waters of Canada.

Population objectives:

P1. maintain the summertime, inland-waters abundance of Pacific Harbour Porpoise (averaged over 5 years) at or above the most recent estimate of average population abundance (in Williams and Thomas 2007)

P2. maintain the summertime abundance of Pacific Harbour Porpoise in the Juan de Fuca Strait (averaged over 5 years) at or above the most recent estimate of average summertime abundance (in Hall 2004)

Distribution objectives:

D1. maintain the population's current range of occupancy and distribution on the coast of B.C.

Research and monitoring objectives:

From 2009 to 2019, the research and monitoring objectives are to:

R1. determine seasonal distribution and abundance for the Pacific Harbour Porpoise in B.C.

R2. contribute to, or foster the understanding of, general aspects of the biology and ecological role of Pacific Harbour Porpoise in B.C. on an ongoing basis; of particular importance are studies on foraging ecology, habitat use in urbanized, coastal areas, and life history

R3. support, foster, and contribute to research addressing knowledge gaps regarding the effects of entanglement, coastal habitat degradation, catastrophic spills, and acoustic disturbance, as well as effects of other identified and non-identified threats to this population, on an ongoing basis

R4. assess available methods and estimate levels of annual human-caused mortality that the population can sustain, while achieving objectives P1 and P2

Management objectives:

From 2009 to 2019, the management objectives are to:

M1. reduce the risk of entanglement or entrapment of Pacific Harbour Porpoise in fishing or other gear in B.C.

M2. reduce degradation of coastal habitat such that it does not displace Pacific Harbour Porpoise from known habitats in B.C.

M3. reduce the risk of catastrophic spills impacting the Pacific Harbour Porpoise population in B.C.

M4. minimize the exposure of Pacific Harbour Porpoise to acute or chronic sound levels in excess of those considered to cause behavioural or physical harm in cetaceans

M5. reduce the exposure of Pacific Harbour Porpoise to regulated and currently unregulated persistent bioaccumulative toxins

M6. promote international collaboration, independent research, education, and outreach on management and conservation initiatives

2.3.2 Performance measures

The management plan did not include performance measures. The progress towards achieving the management goal and objectives will be informed by the progression made under the actions and approaches outlined in section 3.1 below.

3 Progress towards conservation

The management plan (DFO 2009) divides the conservation effort into five broad strategies: 1) protection; 2) management; 3) research; 4) monitoring and assessment; and 5) outreach and

communication. Progress in carrying out these broad strategies is reported in section 3.1. Section 3.2 summarizes the progress made toward undertaking these actions and approaches.

3.1 Management actions supporting conservation

Table 2 provides information on the implementation of activities undertaken to address the broad strategies, actions, and approaches identified in the management plan. The timelines shown have been included from the implementation schedule (Table 4) in the management plan. Each activity has been assigned one of four statuses:

1) completed: the planned activity has been carried out and concluded
2) in progress: the planned activity is underway and has not concluded
3) not started: the activity has been planned but has yet to start
4) cancelled: the planned activity will not be started or completed

See Appendix A for an index of the acronyms used throughout the report.

Table 2. Status of actions and approaches undertaken to address the management goal and objectives outlined in the management plan.

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
1	1) Protect from acute acoustic disturbance, mitigate negative effects	a) Review of Department of National Defense (DND) protocol for tactical sonar use, revise if necessary	To be determined	In progress	The current DND policy on marine mammal mitigation is contained in the Maritime Command Order 'Marine Mammal Mitigation Procedures for Active Sonar Use' (MARCORD 46-13). DFO and DND meet periodically to discuss marine mammal measures, and revisions if required (Cottrell, pers. comm. 2016). For additional information also see broad strategy 5, action 17c.	P2, D1, M4	**DFO**[3]; **DND**
1	2) Protect the population from physical disturbance, vessel	a) Complete Marine Mammal Regulation	Ongoing, projected completion 1 year	In progress during reporting period	Amendments to the Canadian Marine Mammal Regulations were drafted and a public comment period for the proposed amendments	D1, M2	**DFO**

[3]Lead participant(s) is/are listed on top and in bold; other participants are listed alphabetically; Not all activities have specific participants identified

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
	interaction, chronic noise stress	(MMR) amendments		(completed in July 2018)[4]	occurred in 2012.		
1	2) Protect the population from physical disturbance, vessel interaction, chronic noise stress	b) Continue enforcement of MMR and other regulations, promote regional guidelines	Ongoing	In progress	DFO Conservation and Protection (C&P) follow up on reports of marine mammal disturbance and investigate potential incidents. Additionally, DFO and ENGO partners conduct presentations in coastal communities focused on how to report marine mammal disturbance and distribute "Be Whale Wise" (BWW) brochures (Cottrell, pers. comm. 2016). PCA requires holders of business licenses to adhere to BWW guidelines and MMR while in park waters (Yakimishyn, pers. comm. 2016). PCA also collaborates with DFO on monitoring underwater noise in Gwaii Haanas National Marine Conservation Area and Haida Heritage Site (Lee, pers.com 2017). Additional information is included in broad strategy 5, action 17b.	D1, M2	**DFO; PCA**
2	3) Develop cooperative research programs		Immediate	Completed (Ongoing effort)	The BC Cetacean Sightings Network (BCCSN), a program run by Ocean Wise (formerly known as the Vancouver Aquarium) in partnership with DFO, continues to collect sightings of Harbour Porpoise in B.C. waters to inform research and conservation. This program received	R1 through R5; M1 through M6	**DFO; ENGOs**

[4] Regulations amending the Marine Mammal Regulations **came into force on July 11, 2018.**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					4,490 sightings of Pacific Harbour Porpoise in B.C. waters between 2010 and 2015 (Danelesko, pers. comm. 2016), resulting in improved understanding of the abundance, distribution, and habitat use of Pacific Harbour Porpoise in B.C. The Porpoise Conservation Society is focused on research, education, and conservation of all porpoises, and is currently collaborating with other organizations internationally in countries including Scotland and Wales to study Harbour Porpoise (Hall, pers. comm. 2016).		
2	4) Strengthen measures to reduce entanglement risk in aquaculture and fishing gear a) Gather data to provide advice on mitigation of entanglements	i) Continue to provide data on bycatch, entanglement	Ongoing	In progress	The Marine Mammal Response Network (MMRN) maintains a database of all reported marine mammal incidents, including Pacific Harbour Porpoise entanglements. The MMRN responds to live stranded, injured and dead Pacific Harbour Porpoise reports. On average the MMRN collects threat information through conducting sampling and/or necropsies of over 30 Pacific Harbour Porpoise carcasses annually. The Marine Education and Research Society (MERS) monitors marine mammals, including Pacific Harbour Porpoise, during times of high whale/fishery overlap around Vancouver Island and the central B.C. coast to improve entanglement	R4, R5, P1, P2	**DFO; NOAA;** ENGOs

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					response and data collection. West Coast Marine Mammal Stranding Networks respond to marine mammal strandings along the coasts of Washington, Oregon, and California and documented 12 fishery-related strandings of Pacific Harbour Porpoise between 2010 and 2014 (Carretta et al. 2016).		
2	4) Strengthen measures to reduce entanglement risk in aquaculture and fishing gear a) Gather data to provide advice on mitigation of entanglements	ii) Continue development of fisheries observer reporting standards and guidelines; species identification, data collection	1 year	Completed (Ongoing effort)	Standards for fisheries observer reporting are managed through the ongoing development of reporting and monitoring standards, individual Integrated Fisheries Management Plans (IFMP), and license conditions (Cottrell, pers. comm. 2016). The Pacific Integrated Commercial Fisheries Initiative (PICFI) includes measures to address the need for enhanced fisheries monitoring, catch reporting, and enforcement. The Government of Canada has been providing funding to implement this program since 2008 (DFO 2015). The DFO Policy for Managing Bycatch was completed in 2013 and applies to all commercial, recreational, and Aboriginal fisheries (DFO 2013a). The Guidance on Implementation of the Policy on Managing Bycatch (DFO 2013b) provides recommendations of priorities for data collection and monitoring to assess the need for	P1, P2, D1, R4, R5, M1	**DFO**; ENGOs

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					requirements for measures to reduce bycatch of all species, including marine mammals. Between 2010 and 2015, BCCSN provided 11 training workshops to Archipelago Marine Research to familiarize fisheries observers with marine mammal species identification (Danelesko, pers. comm. 2016).		
2	b) Develop methods to reduce entanglement in salmon gillnets	i) Review the feasibility of implementing the use of acoustic deterrent devices on salmon gillnets as an emergency, temporary mitigation measure for entanglement hotspots	3 years	In progress (U.S.) Not started (Canada)	DFO has not conducted research into the effectiveness of acoustic deterrents ("pingers") in gillnet fisheries. While recent research has found that pingers can reduce Harbour Porpoise bycatch in gillnets, with little or no evidence of habituation, the long-term effects of pinger exposure on Harbour Porpoise are not well-studied. A study in the United Kingdom tested the practicality and effectiveness of acoustic deterrent devices on small fishing vessels. No significant logistical problems were found, and a significant reduction in the number of Atlantic Harbour Porpoises at nets using devices was documented, with no evidence of habituation (Hardy et al. 2012). A review of 14 studies conducted in North America and Europe found	P1, P2, D1, M1	**Academia; NOAA**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					that acoustic deterrents resulted in significant reduction in bycatch of Harbour Porpoise, with no evidence of habituation (Dawson et al. 2013). NOAA is undertaking a national effort to develop non-lethal deterrents for marine mammals, including acoustic deterrents (Rotterman, pers. comm. 2016). This effort included a three-day workshop to evaluate the risks of deterrents to marine mammals and inform development of U.S. guidelines on safely deterring both ESA-listed and non-listed marine mammals (Long et al. 2015). Two recent studies investigating the long-term effectiveness of pingers on Harbour Porpoise found that use of pingers resulted in temporary displacement of Harbour Porpoise from foraging habitat and recommended that reduced foraging efficiency be considered as well in fisheries management decisions on bycatch mitigation measures for Harbour Porpoise (Kyhn et al. 2015; Beest et al. 2017).		
2	b) Develop methods to reduce entanglement in salmon gillnets	ii) Review the feasibility of implementing the use of barium sulphate netting for long-term mitigation of	1 year	Not started	DFO has not conducted research to evaluate the effectiveness of this potential mitigation method. Published studies have focused on the use of reflective (barium sulphate infused) netting to reduce cetacean bycatch, but have shown mixed results (e.g. Bordino et al. 2013).	P1, P2, D1, M1	**Academia; ENGOs**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
		entanglement					
2	b) Develop methods to reduce entanglement in salmon gillnets	iii) Consider the use of alternative fishing gear (as information becomes available) to reduce entanglement risk	As information about alternative gear-types becomes available	In progress	Use of alternative fishing gear to reduce entanglement risk to Pacific Harbour Porpoise has not been implemented in B.C. waters, implementation will depend on reliable scientific studies which show measures are effective and feasible (Cottrell, pers. comm. 2016). Certification standards and mandatory public reporting have led to the aquaculture industry developing best management practices to reduce the incidence of marine mammal entanglement. These practices include making changes to the infrastructure and material of antipredator nets (Shaw, pers. comm. 2016).	P1, P2, D1, M1	**DFO; industry**
2	c) Develop, review, implement aquaculture protocols for mitigation of entanglement.	i) Complete reporting requirements for entanglement at aquaculture sites; species identification, data collection, time requirements for reporting	4 years	Completed	In 2010, DFO implemented mandatory reporting of incidental drowning of marine mammals at aquaculture sites. Mortalities must be reported within 24 hours of the incident. Data provided with reports includes date, time, species identification, whether there were fish on site, mitigation measures in place prior to the incident, circumstances that led to the incident, and corrective measures to be taken after the incident (Shaw, pers. comm. 2016). Ongoing review and revision of	P1, P2, D1, R5, M1	**DFO**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					reporting requirements continue to occur as needed.		
2	c) Develop, review, implement aquaculture protocols for mitigation of entanglement.	ii) Develop operational standards for mitigating entanglement at fallowed aquaculture sites	4 years	Not started	No specific regulations have been implemented to prevent entanglement at fallowed aquaculture sites. However, the general practice is to remove nets from aquaculture sites during long-term fallow periods, leaving only anchoring gear (Shaw, pers. comm. 2016).[5]	P1, P2, D1, M1	**DFO; industry**
2	5. Manage, reduce input of chemicals into Pacific Harbour Porpoise habitat a) Develop marine mammal-specific measures for inclusion into catastrophic spill response programs	i) Develop an emergency response plan to include marine mammal expertise into spill response initiatives	1 year	Not started during reporting period	Stronger regional emergency response plans are under development in collaboration with partners as part of the Government of Canada's national Ocean Protection Plan launched in November 2016. Four pilot studies have been launched across Canada, including one site in southern B.C. Marine mammal experts are engaged in plan development and indigenous and coastal community consultations will be held on the draft plans, once developed.[6] The Gwaii Hanaas Public Safety Plan requires that a marine spill response kit (for small spills) be maintained and a field crew receives oil spill response training (Bartier	P2, M2, M3, M5, M6	**CCG DFO, Ocean Wise (formerly Vancouver Aquarium), Province of B.C., TC,** PCA

[5] Changes to standards for mitigating entanglement at fallowed aquaculture sites are currently being implemented. Tag lines between mooring buoys and anchors will be removed at all fallowed sites (Cottrell, pers. comm. 2017).

[6] While outside the reporting period, the Government of Canada's recent emergency response initiatives under OPP are relevant for consideration and have been included in the table for information only.

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					pers. comm. 2018). In 2015, Gwaii Haanas began participating in a Transport Canada-led initiative to create a Port of Refuge Contingency Plan for Haida Gwaii.[7]		
2	5. Manage, reduce input of chemicals into Pacific Harbour Porpoise habitat a) Develop marine mammal-specific measures for inclusion into catastrophic spill response programs	ii) Develop a marine mammal specific operational manual	1 year	Not started during reporting period (Canada) Completed (U.S.)	A marine mammal-specific operational manual will be developed for the southern B.C. pilot site in 2019-2020 (Herborg, pers. comm. 2018).[6] NOAA has developed guidelines to direct and inform response activities for marine mammals during oil spills. These guidelines allow for communication between agencies and maintain readiness for response to oiled wildlife at a national level in the U.S. (Ziccardi et al. 2015).	P2, M2, M3, M5, M6	**NOAA**
2	b) Review and routinely monitor point-source contamination in known Pacific Harbour Porpoise habitat in B.C.	i) Review management of point sources of chemicals to assess relevancy of federal, provincial, regional thresholds for contamination (chemicals listed in Appendix I)	To be determined	In progress	The National Pollutant Release Inventory is a publicly available data source to which facilities are required to report pollutant releases to air, water, or land. This resource allows for identification of pollution prevention priorities and aids development of targeted regulations for reducing release of toxins (ECCC 2016). Based on declining concentrations of PCBs, PBDEs, PCDEs, and PCNs in a sentinel marine mammal species (Harbour Seals) in the Strait of	P1, P2, M2, M3, M5, M6	**DFO; ECCC; KCDNRP WSDE**

[7] The final plan was released in November 2017 (Bartier pers. comm. 2018).

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					Georgia, regulations and source controls have been effective in significantly reducing inputs of these contaminants into southern B.C. waters (Ross et al. 2013). The major sources of several chemical pollutants in Puget Sound, including PCBs, were identified as part of the Washington State, Department of Ecology's Assessment of Selected Toxic Chemicals in Puget Sound Basin (Ecology and King County 2011).		
2	b) Review and routinely monitor point-source contamination in known Pacific Harbour Porpoise habitat in B.C.	ii) Routinely monitor these point sources to assess compliance with federal, provincial, regional guidelines for thresholds	To be determined	In progress	Sediment concentrations of PCBs, PBDEs, PCDDs, and PCDFs from disposal at sea sites at Sands Head, Point Grey, Brown Passage, and Douglas Channel were measured to help inform administration of ECCC's Disposal at Sea Regulations (Ross et al. 2011; Ross et al. 2012). In 2015, Ocean Wise initiated "PollutionTracker" a monitoring framework with 51 stations along the coast of B.C. to provide coast-wide information about contaminant levels, types of contaminants, and response to regulations. Contaminant data are collected from sediment and mussels and will be analyzed and reported on every three years (Ross, pers. comm. 2017).	P1, P2, M2 M3, M5, M6	**DFO; ENGOs**
2	b) Review and	iii) Develop	CEPA	Completed	Regulations prohibiting the	P1, P2, M2,	**DFO;**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
	routinely monitor point-source contamination in known Pacific Harbour Porpoise habitat in B.C.	regulations for new, emerging PBTs, specifically PBDEs	PBDE regulation published July 2008		manufacture of all seven PBDEs came into effect in Canada in July 2009 (Environment and Climate Change Canada 2015). A review of research documenting some of the sources and properties, as well as the persistence and toxicity of PBDEs was published in 2009; this report contributed to the decision to ban deca-PBDEs in Canada (Ross et al. 2009). An action plan for PBDEs in the U.S. was finalized in December 2009 (U.S. Environmental Protection Agency 2009).	M3, M5, M6	**ECCC; EPA**
2	6) Continue issuing permits for non-DFO research, monitoring and assessments		Ongoing	In progress	From 2010 through 2015, DFO issued 9 permits for marine mammal research that included Pacific Harbour Porpoise as a focus species. Permits for non-DFO research, monitoring, and assessments continue to be issued by DFO as applications are reviewed. Parks Canada requires a research permit to conduct research on marine mammals in its Heritage Areas. The research permit system places controls on research activities, helps track research being conducted in Heritage Areas, and ensures the permit is SARA-compliant (Parks Canada 2006).	R1 through R5, M6	**DFO; PCA;** academia; ENGOs

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
2	7) Support MMRN program		Ongoing	In progress	A MMRN Advisory Team made up of representatives from DFO, Province of B.C., ENGOs, and PCA was formed in 2015 to lead efforts to support MMRN initiatives. DFO Fisheries Officers, ENGOs (including BCCSN, Cetus, MERS, and NCCS), and First Nations groups (including Haida Gwaii Marine Stewardship Group and the Heiltsuk Species at Risk Stewardship Program) support MMRN initiatives by responding to marine mammal incidents throughout the B.C. coast. Training has been provided to members of these organizations by DFO/MMRN to act as first responders for marine mammal stranding and entanglement events. ENGOs, including BCCSN, Cetus, MERS, and NCCS promote the MMRN through presentations, signage, and distribution of MMRN outreach materials. Over 79 MMRN posters and 2,216 MMRN stickers have been distributed by these organizations coast-wide between 2010 and 2015. PCA contributes to data collection and coordinating responses to marine mammals in distress (S. Helms, pers. comm. 2016) and participates in data collection and potentially necropsies of any dead	R4, R5	**DFO**; Province of B.C.; ENGOs, First Nations; PCA

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					cetaceans in Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (Lee pers. comm. 2017).		
3	8) Reconnaissance vessel surveys to provide coast-wide abundance estimates. Aerial surveys, if feasible		1 year	In progress	DFO conducts multi-species ship-based cetacean surveys (usually 3 per year). Sighting information is logged for all species, including Pacific Harbour Porpoise (Nichol, pers. comm. 2016). Dedicated aerial surveys have not been conducted by DFO (Nichol, pers. comm. 2016) but Pacific Harbour Porpoise sightings are collected opportunistically during DFO aerial surveys for marine mammals. Aerial line-transect surveys for Pacific Harbour Porpoise were conducted by environmental consultants in the inside waters of Washington and southern B.C. from 2013-2015 (Jefferson et al. 2016). The WDFW conducts annual winter aerial surveys of the inner marine waters of Washington State. These surveys are primarily focused on marine birds; however, all marine mammal sightings have been logged since 1995. These surveys have allowed analyses of the trends in winter density of Pacific Harbour Porpoise in these waters (Evenson et al. 2016).	R1, R2, R3, R5, M6	**Academia; DFO; environmental consulting; WDFW;** ENGOs

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					Previous estimates of marine mammal (including Pacific Harbour Porpoise) distribution and abundance in inshore waters of B.C. were improved using more years of ship-based survey data and alternative modeling approaches (Best et al. 2015).		
3	9) Develop methodology for studies on habitat and dietary requirements	a) Determine seasonally important prey species and nutritional needs of Pacific Harbour Porpoise in B.C.	2 years	In progress	Stomach contents collected from 36 Pacific Harbour Porpoise were analyzed. These samples, primarily collected from the Straits of Georgia and Juan de Fuca, provided information about relative importance of prey species and some data on seasonal changes in Pacific Harbour Porpoise diet (Nichol et al. 2013). Collection of stomach contents from stranded Pacific Harbour Porpoise is ongoing (Nichol, pers. comm. 2016)	P1, P2, R1, R3	**DFO;** academia
3	9) Develop methodology for studies on habitat and dietary requirements	b) Support, when feasible, telemetry surveys	4 years	Not started	Based on studies conducted internationally (e.g. Kindt-Larsen et al. 2016), collecting telemetry data from Harbour Porpoises is feasible; however, telemetry surveys have not been considered in Canadian waters (Nichol, pers. comm. 2016). A live-stranded and rehabilitated Pacific Harbour Porpoise was tracked via satellite tag for 70 days in	D1, R1, R3	Academia; ENGOs

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					2013 following release by the Vancouver Aquarium.[8]		
3	10) Determine range and seasonal occurrence in B.C	a) Share Pacific Harbour Porpoise data from reconnaissance surveys	1 year	Completed (Ongoing effort)	Results of cetacean surveys conducted by DFO from 2002-2008, including number of sightings and distribution of Pacific Harbour Porpoise in B.C., were made publicly available in 2010 (Ford et al. 2010). Results of aerial surveys for Pacific Harbour Porpoise in U.S. and southern B.C. waters have been made publicly available through peer-reviewed publications (e.g. Jefferson et al. 2016).	D1, R1, R3	**DFO; environmental consulting**
3	10) Determine range and seasonal occurrence in B.C	b) Share Harbour Porpoise data from remote acoustic packages	1 year	In progress	Since 2014, DFO has collaborated on an Innovation Canada project to implement a whale-tracking network using hydrophones in southern B.C. waters. Although this project is focused primarily on humpback and killer whales, the hydrophones used can also detect Pacific Harbour Porpoise clicks (Cottrell pers. comm. 2016).[9] Since 2014, NCCS has monitored a network of four hydrophones in Squally Channel capable of detecting Pacific Harbour Porpoise clicks (Wray, pers. comm. 2016).	D1, R1, R3	**DFO; ENGOs**

[8] See the Ocean Wise Marine Mammal Rescue initiative for more information.
[9] NCCRI initiated a study in 2016 using a C-POD passive acoustic monitoring system and land-based observations to determine daily and seasonal habitat use by Pacific Harbour Porpoise off Prince Rupert, B.C. (C. Birdsall, pers. comm. 2016).

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					Since 2009, the Pacific Biodiversity Institute has used passive acoustic monitoring in addition to visual observations to record Pacific Harbour Porpoise movements and distribution at several sites in the Salish Sea (Jeffries, pers. comm. 2016).		
3	11) Contribute to genetic analyses by providing tissue samples when possible		Opportunistic	Completed (Ongoing effort)	Genetic samples from 190 Pacific Harbour Porpoises collected between 1992 and 2012 were contributed by a number of organizations (including DFO and the Province of B.C.) for genetic analyses of Pacific Harbour Porpoise in southern B.C. Results indicated no evidence of population structure for Pacific Harbour Porpoise in this area and that Pacific Harbour Porpoise hybridize with Dall's Porpoises over a larger range than previously documented (Crossman et al. 2014).	R3	**Academia;** Province of B.C.; DFO; PCA; ENGOs
3	12) Assess age of stranded animals via necropsy and use of accepted aging techniques, where feasible		Ongoing	Not started[10]	General information about age class (i.e. adult/calf/juvenile) of stranded individuals is collected opportunistically by the MMRN (Nichol, pers. comm. 2016). In the past, teeth were collected from dead stranded Pacific Harbour Porpoise for the purposes of aging, but these are no longer typically being collected (Raverty, pers. comm. 2016).	R3	**DFO**

[10] This activity did not take place in the period 2010-2015.

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
4	13) Monitor regional and seasonal abundance	a) Contribute to determination of survey frequency necessary to monitor regional and seasonal abundance	3 years	Not started	Assessment of survey frequency necessary to monitor regional and seasonal abundance of Pacific Harbour Porpoise in B.C. has not been completed (Hall, pers. comm. 2016; Nichol, pers. comm. 2016). Based on 13 years of effort-corrected data from southern B.C., Pacific Harbour Porpoise sightings exhibit significant inter-annual variability. These results indicate that frequent surveys would be necessary in order to capture this variability (Hall, pers. comm. 2016; Hall 2011).	P2, D1, R1, R2, R3, M6	**Academia**
4	13) Monitor regional and seasonal abundance	b) Contribute to determination of appropriate index sites for use in long-term monitoring of 13a	3 years	In progress	Index sites have not been identified by DFO (Nichol, pers. comm. 2016). Based on an extensive 12-year data set, the first potential breeding sites for Pacific Harbour Porpoise were identified in the Strait of Juan de Fuca (Hall 2011). Based on sightings collected by BCCSN, Pacific Harbour Porpoise, including large and active groups, are seen regularly year-round in Prince Rupert Harbour (Birdsall, pers. comm. 2016).	P2, D1, R1, R2, R3, M6	**Academia; ENGOs**
4	13) Monitor regional and seasonal abundance	c) Support, where feasible, land-based and/or vessel-based surveys to	3 years	Completed (Ongoing effort)	The Porpoise Conservation Society has an active land-based research program focused on determining habitat use and potential reproductive sites of Pacific Harbour Porpoise in southern B.C. (Hall, pers.	P2, D1, R1, R2, R3, R5, M6	**ENGOs**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
		carry out 13a and 13b			comm. 2016). Ocean Wise conducts bi-weekly land-based surveys for Pacific Harbour Porpoise off Prince Rupert, B.C. (Birdsall, pers. comm. 2016). The Pacific Biodiversity Institute uses land-based observations to monitor Pacific Harbour Porpoise presence at five sites in the Salish Sea (Jeffries, pers. comm. 2016).		
4	13) Monitor regional and seasonal abundance	d) Support, where feasible, photographic analyses of individuals to support 13a through 13c	4 years	In progress	The Porpoise Conservation Society has begun photo-identification efforts for Pacific Harbour Porpoise, and has recently established a Pacific Harbour Porpoise photographic identification catalogue (Hall, pers. comm. 2016).	P2, D1, R1, R2, R3, M6	**ENGOs**
4	14) Continue to support the collection of sightings information		Ongoing	Completed (Ongoing effort)	The BCCSN has a network of over 4,000 mariners, coastal citizens, and members of the public that contribute sightings of cetaceans. They received 4,490 sightings of Pacific Harbour Porpoise in B.C. waters between January 2010 and December 2015 (Danelesko, pers. comm. 2016). PCA staff report cetacean sightings to the BCCSN. Since 2015, the Porpoise Conservation Society has operated a sightings network specifically for porpoise sightings (Hall, pers. comm. 2016).	R1	**ENGOs; PCA**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
4	15) Conduct assessments of vulnerability to identified threats	a) Coordination of collection of dead stranded animals for necropsy and tissue sampling	Ongoing	In progress	The MMRN coordinates collection of dead stranded animals in B.C. when geography/logistics allow and when carcasses are sufficiently fresh. On average over 30 Pacific Harbour Porpoise carcasses a year are sampled for cause of death to determine what anthropogenic threats may be affecting the population (Raverty, pers. comm. 2016). The West Coast Marine Mammal Stranding Network coordinates responses and necropsies for stranded Pacific Harbour Porpoise along the Washington, Oregon, and California coasts.	R3, R4	**DFO; NOAA**
4	15) Conduct assessments of vulnerability to identified threats	b) Maintain database on reported incidents involving Harbour Porpoise	Ongoing	In progress	The MMRN maintains a database of all reported marine mammal incidents, including those involving Pacific Harbour Porpoise. Approximately 30-40 Pacific Harbour Porpoise deaths are reported annually. These deaths exhibit a bimodal distribution, peaking in spring and fall (Cottrell, pers. comm. 2016; Nichol et al. 2013). Pacific Harbour Porpoise incident data collected by MMRN were included as part of a peer-reviewed study focused on the causes of mortality of Harbour Porpoises along the Atlantic and Pacific coasts of Canada (Fenton et al. 2017).	R4, R5	**DFO; Canadian Wildlife Health Cooperative;** academia; B.C. Ministry of Agriculture and Lands

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
4	16) Assess potential for fisheries interactions	a) Utilize data on seasonal occurrence, fishing sites to determine risk for incidental by-catch	2 years, contingent upon 10 results	Completed (Ongoing effort to refine information)	MERS monitors cetaceans during times of intensive fishing effort around Vancouver Island and the central B.C. coast to improve entanglement response and collect data to inform risk of bycatch of marine mammals, including Pacific Harbour Porpoise. The BCCSN used effort-corrected sightings and fishing vessel traffic data to identify areas of high entanglement risk for Pacific Harbour Porpoise (Danelesko and Eagan 2014). Sighting and seasonal occurrence data collected by BCCSN are used to inform potential impacts of new aquaculture development on marine mammals, including Pacific Harbour Porpoise. (Danelesko, pers. comm. 2016).	P1, P2, D1, R3, R4, M1	**ENGOs**
4	16) Assess potential for fisheries interactions	b) Assess potential for resource competition using research results on Harbour Porpoise diet and harvest levels of herring and hake	3 years, contingent upon 9a results	Not started	The potential for resource competition with herring or hake fisheries has not been directly assessed (Nichol, pers. comm. 2016). Collection of stomach contents from stranded Pacific Harbour Porpoise is ongoing (Nichol, pers. comm. 2016).	P1, P2, D1, R3, R4	**DFO**
5	17) Foster	a) Develop	1 year	In progress	A MMRN Advisory Team made up of	P2, D1, M2,	**Academia**;

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
	communication networks	intra- and inter-agency communication networks for oil spill response and entanglement			representatives from DFO, the B.C. Province, ENGOs, and PCA was formed in 2015 to facilitate communication regarding marine mammal response among agencies. Intra- and inter-agency communications regarding emergencies (such as for oil spills) are outlined in existing federal and provincial response plans and include a formalized incident command structure. The agreements recognize that environmental emergencies are not limited to one jurisdiction and require cooperative responses.[11] The Marine Spills Contingency Plan - National Chapter outlines the process, including communications that CCGS follows when responding to a marine emergency (DFO 2011). The Canada-United States Joint Marine Pollution Contingency Plan outlines the steps needed, including communications, to coordinate international responses to discharges of pollutants in the contiguous waters of Canada and the United States. B.C.'s Marine Oil Spill Response	M3, M5, M6	**B.C. Province CCG; DFO; ECCC; NOAA; TC**; ENGOs; FN, municipalities; PCA

[11] CCG command systems are being strengthened under Canada's national Oceans Protection Plan launched in 2016. TC, DFO, ECCC and their partners (e.g., Ocean Wise, Focus Wildlife, other contractors) are also reviewing and improving their communications to ensure readiness in the event of a spill.

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					Plan outlines incident command and communication frameworks (B.C. Ministry of the Environment 2013). Other agencies and local governments fit into the response network and are included as required. DFO engages with the fishing and aquaculture industries to determine best practices to mitigate risk of entanglement for marine mammals (Cottrell, pers. comm. 2016).		
5	17) Foster communication networks	b) Promotion of MMR, and BWW guidelines	Ongoing	In progress	DFO fisheries officers provide information about BWW to stakeholders, members of the fishing industry, and members of the public (Cottrell, pers. comm. 2016). ENGOs, including BCCSN, Cetus, MERS, and NCCS, promote BWW guidelines and responsible vessel operation around marine mammals through presentations, signage, and other outreach materials. Over 19,479 BWW brochures, 442 BWW posters, and 1,344 BWW stickers were distributed coast-wide by BCCSN and Cetus between 2010 and 2015. First Nations groups (Gilga'at First Nation, HGMSG, Namgis First Nation) inform fishing lodges and vessel operators from the North Coast of B.C., Haida Gwaii, and Vancouver Island of appropriate	P2, D1, M6	**DFO; ENGOs; First Nations; industry; PCA**

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					marine mammal viewing protocols. Straitwatch promoted BWW guidelines through on-water boater education programs in 2010, 2011, 2012, and 2014, reaching over 8,318 vessel operators and passengers around Vancouver Island. Tourism industry associations operate according to codes of conduct/Best Practices Guidelines to ensure responsible viewing of marine wildlife (North Island Marine Mammal Stewardship Association 2012; Pacific Whale Watch Association 2014). PCA requires licensed commercial operators to follow safe viewing guidelines for marine wildlife. PCA includes guidance and information about BWW in their mandatory visitor orientation at Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Sites and within Pacific Rim National Park Reserve (Parks Canada Agency 2016). Soundwatch promotes BWW guidelines though on-water boater education programs in northern Washington State waters.		
5	17) Foster communication networks	c) Foster education programs on chronic	5 years	Completed (Ongoing effort)	The Porpoise Conservation Society provides public outreach about porpoises and anthropogenic threats to porpoise populations at their land-	P2, D1, M1, M2, M4, M6	ENGOs; PCA; NOAA; Olympic

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
		acoustic disturbance, habitat degradation, entanglement			based study site and through school programs (Hall, pers. comm. 2016). Sea View Marine Sciences and Archipelago Marine Research developed and delivered a First Nations education program that includes information about threats to Pacific Harbour Porpoises (Hall, pers. comm. 2016). MERS provides training to tourism operators, naturalists, and the general public about marine mammal biology and conservation, including threats to Pacific Harbour Porpoise. The BCCSN provides information about anthropogenic threats to marine mammals, including Harbour Porpoise, to over 100,000 mariners, coastal citizens, and members of the public each year through outreach events, presentations, social media, and publications. This has included coordinating with MMRN to host marine mammal species identification workshops for DND and U.S. Navy personnel. Parks Canada Gwaii Haanas is a partner in the Haida Gwaii Marine Stewardship Group which delivers outreach programs focused on species at risk including cetaceans (Lee pers. comm 2017).		Coast National Marine Sanctuary; Seattle Aquarium; WDFW

Broad Strategy	Action	Approach	Timeline	Status	Description and results	Objectives	Participants
					The Whale Trail is a program to inspire marine mammal stewardship and raise awareness about threats to marine mammals, extended to B.C. in 2015 though cooperation with the Vancouver Aquarium.		
5	17) Foster communication networks	d) Trans-boundary, inter-jurisdictional collaboration	Immediate	Completed (Ongoing effort)	A workshop focused on identifying gaps in the research and management of Pacific Harbour Porpoise in the Salish Sea and coordinating future research efforts was held by Cascadia Research Collective, the SeaDoc Society, and the Pacific Biodiversity Institute in 2013. Workshop participants included researchers from B.C. (DFO, UBC, and the Vancouver Aquarium). The Porpoise Conservation Society collaborates and communicates with porpoise researchers internationally to address knowledge gaps (Hall, pers. comm. 2016). Pacific Harbour Porpoise samples are shared internationally between Ocean Wise and NOAA for the purposes of better understanding the structure of this population (Crossman, pers. comm. 2016).	All objectives	**ENGOs;** academia; DFO; NOAA

3.2 Summary of progress towards achieving the objectives

3.2.1 Status of actions and approaches

Thirty-eight actions and approaches from the management plan are identified in Table 2 (columns 1 and 2). During the 2010-2015 time period, of the 38 actions and approaches identified, 11 had been completed for Pacific Harbour Porpoise in Canadian waters (29%); while activities to meet another 18 actions and approaches were in progress, and were not completed at that time, and may not have a specific endpoint (47%). Activities in support of nine approaches had not yet started (24%).

4 Concluding statement

Progress has been made toward meeting many of the objectives and strategies outlined in the Management Plan for the Pacific Harbour Porpoise (*Phocoena phocoena vomerina*) in Canada for the period 2010-2015. The majority of the actions and approaches outlined in the management plan are completed or currently underway. Many of the following activities are examples of ongoing efforts that will provide further understanding of Pacific Harbour Porpoise abundance, distribution, biology, and the threats to this population into the future:

- multi-species, ship-based surveys
- sightings networks, and land-based observations
- passive acoustic monitoring
- research on prey species and seasonal diet of Pacific Harbour Porpoise
- improved understanding of Pacific Harbour Porpoise population structure in B.C.
- identification of the first potential breeding sites for Pacific Harbour Porpoise in B.C.
- outreach and education programs to raise awareness about threats to this population and engage members of the public to aid in threat mitigation

Despite the progress made to date in implementing the management plan, ongoing work is needed to monitor the status of Pacific Harbour Porpoise and current and future threats to its conservation.

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Appendix A: Acronyms

B.C.	British Columbia
BCCSN	British Columbia Cetacean Sightings Network
BWW	Be Whale Wise
CCG	Canadian Coast Guard
Cetus	Cetus Research and Conservation Society
DDT	dichlorodiphenyl trichloroethane
DFO	Fisheries and Oceans Canada
DND	Department of National Defense
ECCC	Environment and Climate Change Canada
ENGOs	Environmental Non-governmental Organizations
EPA	U.S. Environmental Protection Agency
ESA	U.S.Endangered Species Act
FN	First Nations
HGMSG	Haida Gwaii Marine Stewardship Group
IFMPs	Integrated Fisheries Management Plans
KCDNRP	King County Department of Natural Resources and Parks, U.S.A.
MARCORD	Canada's Department of National Defence, Maritime Command Order protocol
MERS	Marine Education and Research Society
MMR	Canada's Fisheries Act, Marine Mammal Regulations
MMRN	Marine Mammal Response Network
NCCRI	North Coast Cetacean Research Initiative
NCCS	North Coast Cetacean Society
NOAA	U.S. National Oceanic and Atmospheric Administration
OPP	Oceans Protection Plan
PBDEs	polychlorinated diphenylethers
PBTs	persistent, bioaccumulative, and toxic chemicals
PCA	Parks Canada Agency
PCBs	polychlorinated biphenyls
PCDDs	polychlorinated dibenzo-p-dioxins
PCDFs	polychlorinated dibenzofurans
TC	Transport Canada
UBC	University of British Columbia
WDFW	Washington State Department of Fish and Wildlife
WSDE	Washington State Department of Ecology